Seed-Starting How-To

One of the most rewarding garden adventures is growing your own vegetables from seed. It's fun, economical, and can increase your summer garden yields. Here's the what, when, and how to get you off on the right foot for a fruitful growing season.

1. Selecting the right seeds for OUR climate

According to the USDA zones map, we are Zone 6, yet very few of these plants survive here. Unfortunately, these are the varieties that come on the generic pre-selected seed racks carried by hardware stores, grocery stores, and big-box stores. As an experienced local nursery, we curate our seed racks with hardy varieties that will thrive in our specific and challenging environment.

2. Timing

Seed-starting too early can result in leggy and rootbound plants (or frozen plants when planting outdoors), while starting too late can allow the autumn freezes to cut your harvest short. See the tables below for timing your seed starting in OUR climate. It may be different from the seed packet recommendations. Most of these plants fare better when started indoors:

Crop type	When to start indoors	When to transplant outdoors*
broccoli, Brussel sprouts, cabbage, cauliflower, onion, spinach, Swiss chard	**Early March to mid-April**	May (6-8 weeks)
tomatoes, peppers, eggplant, hardy herbs	**Mid-March to early May**	Late-May (6-8 weeks)
cucumbers, squash, pumpkin, zucchini	Late May (better outdoors in June)	**Mid-June (1-2 weeks)**

This is a generalization. For more information see Villager Nursery's Vegetable Gardening handouts.

These plants can be sown directly outdoors:

Crop type	When to start outdoors
arugula, carrots, lettuce, peas, radishes, sunflower	April-May
beans, corn, beets	Mid-June

For seeding directly outdoors, most instructions are based on "average last date of frost" which is less than a 50% chance of a less than 32ºF night. Location dependent, our documented "date" is mid- to late June (earlier at higher elevations in town and later in cold low spots). Our season is short; plant as early as possible and be cautious. Always be prepared for frost.

3. Supplies

Use a seed starting mix, not potting soil, nor compost, nor soil from your yard. Most seed starting mixes will have a *mild* "nutrient package" of slow release fertilizer. You can also use a sterile plant starting medium like rockwool, oasis, or coir (or peat) pellets. You can plant in cell-trays, peat-pots, cow-pots, new or reused plastic pots, half milk cartons, tin cans, or even egg cartons… Just make sure there are holes in the bottoms for drainage! A seed starting tray can catch the water under your starter containers.

Seeds contain all of the energy and nutrients needed for germination (sprouting, emerging) and growing young plants for a week or two. Fertilizer (*diluted* organic fertilizer and seaweed-based fertilizer) is recommended for after the second set of true leaves appear. *"True leaves" are the second set of foliage. They have the mature plant's leaf shape, they're just tiny. The leaf-like structures that come out of seeds are called cotyledons.*

4. Read the seed packets for this info:

Days to maturity: This is how many days it takes from planting the seed to harvesting the crop. The bigger the number, the more you need to plan ahead!

Planting depth: Every seed is different! Follow the directions on this one.

Spacing: Seeds should not be planted too close together, otherwise they will be spindly with weak shoots and roots and will be more difficult to transplant.

After germination, thin your seedlings by carefully snipping off the excess seedlings with scissors. Alternatively, gently separate and transplant individual seedlings to larger containers after they have 1-2 true leaves. Also, save enough space in your garden to let your plants spread out as much as the seed packet says.

Frost tolerant vs frost sensitive: Frost sensitive plants cannot ever tolerate any frost.

5. Correct moisture is key

Make sure your seed starting mix is thoroughly moist before you plant your seeds. A dome or clear cover for your seedlings is an easy way to maintain moisture during germination. Covering the tray or growing container with a clear plastic bag also works. Be sure to lift the lid, or open the bag, once a day to refresh the air. Once true leaves are formed, remove the dome. Use a spray bottle to gently mist the soil (pouring water onto your seeds or seedlings can disturb the delicate

new roots) to keep it moist, but neither soggy nor dry. Ideally, use luke-warm or room temperature water. Don't let your starter containers sit in excess water, seedlings need air too. An oscillating fan, used a couple of times a day will move and strengthen seedlings' stems and reduce disease.

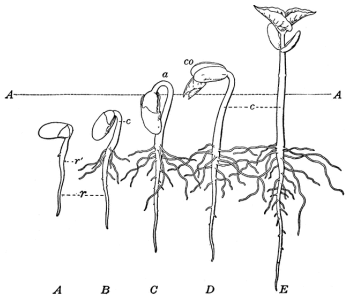
6. Heat

Most seeds sprout best at 75-80ºF. Using a seedling heat mat helps germination and speeds early growth.

7. Light

Many seeds prefer dark for germination. But once seeds have sprouted, they need 13-16 hours of daily sunlight. An east-facing windowsill is a great spot for seedlings. You can use an inexpensive 4' LED shop light for supplemental light. For plants with good window light, use supplemental light only at night. Direct midday-afternoon mountain sunlight is too intense for most seedlings (though older tomatoes and peppers love south-facing windows with tons of sun). Turn the seedling trays daily so they grow straight, not towards the light.

8. Transplanting



Plants remaining indoors for more than 5 weeks need to be transplanted into larger pots (tomatoes, peppers, eggplant, hardy herbs). New (or old & cleaned) 4" nursery bedding pots and a good organic potting soil are most commonly used.

Carefully lift a seedling by holding a true leaf while gently loosening the medium below the roots at the same time. Place the seedling into a pot partially filled with potting soil. Hold the seedling slightly below its final height and gently raise it as you sprinkle more potting soil around the roots. The final height in the soil should be the same as it was before transplanting.

For potted seedlings, carefully remove the cell and plant it at the same height. Or tear the bottom off of a peat-pot or cow-pot and place it into new soil.

Water very gently to settle the soil around the disturbed roots. Fertilize weekly with seaweed and a diluted organic fertilizer.

9. Hardening - off

"*Hardening" is the process of helping a plant transition from a protected indoor or greenhouse environment to our harsh outdoor conditions of fluctuating temperatures, frost, low humidity, desiccating wind, and intense sun exposure*.

The seedlings from indoors are too tender to go directly outside in our mountain environment. A transition period of a little more sun and cold every day for a couple of weeks is necessary for them to handle the full force of our outdoors.

Hardening was challenging before we began using spun-bonded polyester, insulating floating row-covers in the mid 1980's. Row-cover ("frost-cloth") diffuses our high-elevation sunlight while slowing wind, saving humidity, and retaining warmth.

Cover seedlings with up to 3 layers of row-cover and bring them outside during the day and then bring them in again at night. Repeat this for several days. Provide some support over the plants to keep them below the cloth. After several days, peel-off a layer of cloth. Maintain two layers for several more days. Using one layer for several days or weeks (or all season) makes hardening easy. Most plants will thrive all summer under a single layer of 1.5oz. row-cover.

10. Preparing/amending the garden bed

When planting, by seed or by transplant, prepare your garden soil at least a week before planting. Adding more mature compost, worm castings, manure and organic fertilizers helps tremendously. If the soils have been built and worked for years, just scratch the new mixture into the top 4-8". If the bed is new, mix more compost, manure and fertilizers deeply into the bed or ground for at least three seasons. Many gardeners add a final thin layer of quality potting soil to the very top. Water the beds well and rake them even and smooth.

If you have time, cover your garden area with a tarp for a week or so to warm the soil before planting. Do not cover existing perennial plants.

11. Protecting crops from the cold

Be sure to always watch the weather. The 1.5 oz floating row-cover (1.5 oz / sq. yd. = 50g / sq. m.) only gives 6-8ºF of frost protection, maybe ~10º with 2-3 layers. Don't risk leaving tender new plants out overnight if temps are low.

Use plant protection and season extending techniques like floating row-cover/frost cloth, cloches, cold frames, rock walls, water bottles, incandescent Christmas lights, etc..., to help plantings survive frost. Frost cloth can remain on your beds all summer long to keep your beds warm and humid for a more fruitful gardening season. Timing of seed sowing outdoors depends on the species and variety and while seed packets have instructions, they must be viewed through the lens of <u>OUR</u> climate.

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